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User Guide

NHS User Guide

National Household Survey, 2011

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Note of appreciation

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Standard symbols

The following symbols are used in Statistics Canada publications:

.	not available for any reference period
..	not available for a specific reference period
...	not applicable
0	true zero or a value rounded to zero
0^s	value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
^{p}	preliminary
^{r}	revised
x	suppressed to meet the confidentiality requirements of the *Statistics Act*
E	use with caution
F	too unreliable to be published
*	significantly different from reference category ($p < 0.05$)

Table of contents

Page

1. Introduction 4

2. Survey content and target population 4
2.1 Content of the National Household Survey (NHS) 4
2.2 NHS target population 5
2.3 The voluntary nature of the survey 5

3. Sampling design and collection 5
3.1 Questionnaire delivery and response modes 5
3.2 Selection of the NHS sample 6
3.3 Collection operations 6
3.4 Subsample and non-response follow-up 6
3.5 Survey response rate 7

4. Data processing 9
4.1 Data Operations Centre 9
4.2 Data edit and non-response imputation 10
4.3 Weighting 10

5. Data quality assessment and indicators 11
5.1 Sampling error 11
5.2 Non-sampling error 12
5.3 Description of the NHS data quality assessment process and indicators 12
5.4 Comparability of the NHS estimates 13
5.5 Indicators of non-response bias 15

6. Data dissemination for NHS standard products 15
6.1 Data suppression 15
6.2 Suppression for confidentiality reasons 15
6.3 Suppression due to estimate quality 16
6.4 Coverage of published NHS data 17

7. Appendices 18
Appendix 1 – List of questions in the 2011 NHS 18
Appendix 2 – List of reference guides for NHS domains of interest 20
Appendix 3 – Comparison of 2011 Census population count and NHS population estimate by size of census subdivisions 21

1. Introduction

Between May and August 2011, Statistics Canada conducted the National Household Survey (NHS) for the first time. This voluntary, self-administered survey was introduced as a replacement for the long census questionnaire, more widely known as Census Form 2B.

The NHS is designed to collect social and economic data about the Canadian population. The objective of the NHS is to provide data for small geographic areas and small population groups.

This guide is intended for NHS data users. It describes the survey's design and methodology and how the collection results are applied to the entire population. It contains helpful information on how to use and interpret the estimates produced with the data that were collected.

2. Survey content and target population

2.1 Content of the National Household Survey (NHS)

The 2011 National Household Survey (NHS) provides information about the demographic, social and economic characteristics of Canadians and the dwellings in which they live. The NHS questions were tested during the 2011 Census consultation and testing processes. Those processes helped Statistics Canada understand users' data requirements and assess questions. The questions were tested through focus groups and one-on-one interviews (qualitative tests) to make sure that they were properly understood. The questions asked in a voluntary context and the NHS collection method were not tested.

The NHS questionnaire contains 54 individual questions and 10 questions about the dwelling (see Appendix 1 for a detailed list of the questions).

The data collected by the NHS cover the following subjects:

- Basic demographics
- Families and households
- Activity limitations
- Ethnic diversity and immigration
- Language
- Aboriginal Peoples
- Mobility and migration
- Education
- Labour
- Place of work and commuting to work
- Income and earnings
- Housing and shelter costs

Two types of questionnaires were developed for the NHS: a questionnaire for the self-administered collection method, and a questionnaire for collection on Indian reserves and in remote areas, where 100% of the households were interviewed by a Statistics Canada enumerator. The NHS collection methods are described in Section 3.2.

2.2 NHS target population

The NHS covers all persons who usually live in Canada, in the provinces and the territories. It includes persons who live on Indian reserves and in other Indian settlements, permanent residents, non-permanent residents such as refugee claimants, holders of work or study permits, and members of their families living with them.

Foreign residents such as representatives of a foreign government assigned to an embassy, high commission or other diplomatic mission in Canada, members of the armed forces of another country stationed in Canada, and residents of another country who are visiting Canada temporarily are not covered by the NHS.

The survey also excludes persons living in institutional collective dwellings such as hospitals, nursing homes and penitentiaries; Canadian citizens living in other countries; and full-time members of the Canadian Forces stationed outside Canada. Also excluded are persons living in non-institutional collective dwellings such as work camps, hotels and motels, and student residences.

A survey's reference date is the date to which respondents refer when answering the questions. The reference date of the NHS is May 10, 2011, the date of the 2011 Census of Population.

2.3 The voluntary nature of the survey

The NHS is a voluntary survey. Statistics Canada encouraged the sampled households to participate in the NHS by outlining the survey's objectives, giving examples of how the data are used, and describing the benefits for their community. These messages were presented in the introductory information sent to respondents and on Statistics Canada's website. Follow-up was carried out for non-respondent households in accordance with Statistics Canada's voluntary social survey model.

3. Sampling design and collection

3.1 Questionnaire delivery and response modes

Delivery of the NHS questionnaires was synchronized with 2011 Census collection operations. In early May 2011, 60% of the selected households received a letter containing the Internet address of Statistics Canada's online questionnaire and a secure access code. The remaining households received a printed questionnaire sent by mail or dropped off by a Statistics Canada enumerator.

Respondents had three response options:

- **an online questionnaire:** Occupants of dwellings selected for the NHS who completed their census questionnaire online could answer the NHS questionnaire either immediately after finishing the census questionnaire or later.

- **a paper questionnaire:** Occupants of dwellings selected for the NHS who did not respond online could complete a printed questionnaire sent by mail or dropped off by a Statistics Canada enumerator in early June 2011.

- **an interview with a Statistics Canada enumerator:** This method was used in remote areas, on Indian reserves and in non-response follow-up. It was also offered to respondents who wanted to complete their questionnaire by telephone by calling the survey's help line.

3.2 Selection of the NHS sample

The NHS is a sample survey. A random sample of 4.5 million dwellings was selected for the NHS. This is slightly less than one-third (30%) of all private dwellings in Canada in 2011. The sample size was determined to ensure a uniform dissemination probability for small areas and small populations, within the available budget and resources. The NHS sample was selected from the 2011 Census of Population dwelling list.

The sampling fraction varies with the questionnaire delivery mode. For the mail delivery mode, about 3 households in 10 (29%) received a questionnaire. For the enumerator delivery mode, the sampling fraction is 1 in 3 households (33%). However, in cases where it was necessary to reach households in remote areas or on Indian reserves, where only the interview response mode was offered, all households were invited to participate in the NHS.

3.3 Collection operations

NHS data collection ran from May to August 2011. It was carried out primarily in three successive waves:

In **wave 1** (May and June), the focus was on online collection.

In **wave 2** (June to mid-July), printed questionnaires were mailed out to households that did not respond in wave 1.

In **wave 3** (mid-July to mid-August), non-response follow-up was conducted for households that did not respond in waves 1 and 2, with the aim of maximizing the survey's response rate.

3.4 Subsample and non-response follow-up

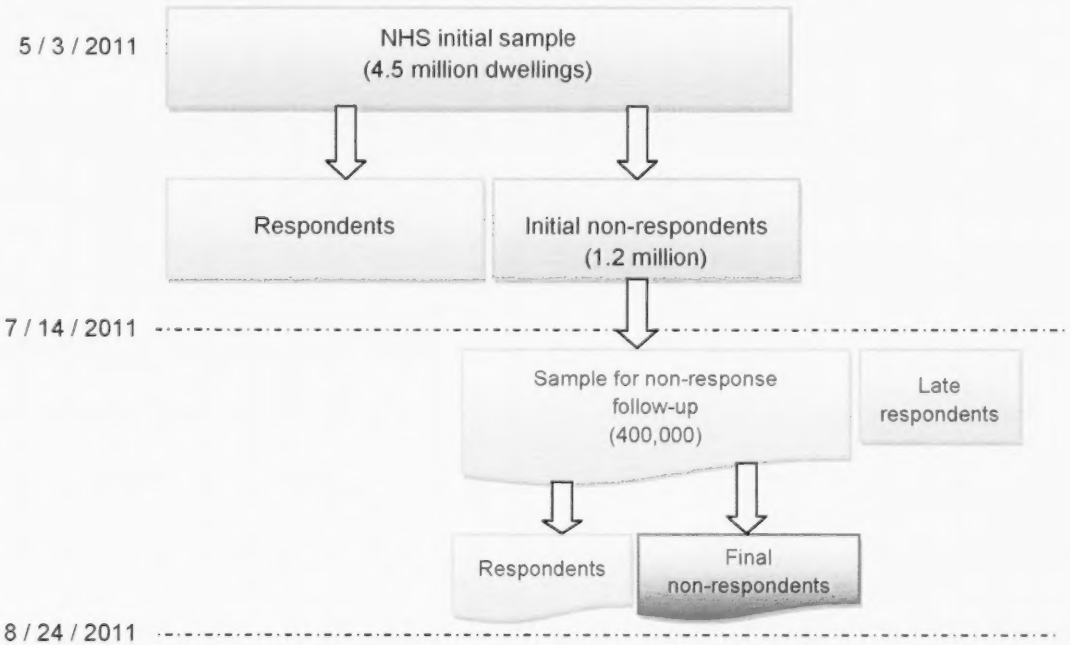
There is non-response bias when a survey's non-respondents are different from its respondents. In that case, the higher a survey's non-response is, the greater the risk of non-response bias. The quality of the estimates can be affected if such a bias is present. Several different methods can be used during data collection or processing to minimize non-response bias. NHS non-response follow-up was planned in such a way as to maximize the survey's response rate and control potential non-response bias due to the survey's voluntary nature. Further details concerning the potential non-response bias are provided in Section 5.5.

Non-response follow-up began in June 2011. During that process, enumerators contacted non-respondent selected households in person or by telephone to obtain their questionnaire responses. Subsequently, in mid-July 2011, a subsample of 400,000 of the 1.2 million dwellings that had not yet responded to the NHS was selected for non-response follow-up.

The 400,000 dwelling subsample was distributed geographically on the basis of the observed level of non-response and the heterogeneity of the population. Heterogeneity reflects the diversity of the population in a particular geographic area. Heterogeneity was determined with data from the 2006 Census long form questionnaire and was calculated for geographic areas similar in size to census dissemination areas (a dissemination area contains about 400 dwellings). Hence there was a correlation between the size of the subsample and the level of heterogeneity: the more heterogeneous the population was the larger the subsample, subject to a minimum size for each geographic area. The subsample was introduced to minimize the non-response bias that can arise when non-respondents are different from respondents.

Figure 1 shows the sampling design and the dates associated with each phase.

Figure 1 NHS sampling design



3.5 Survey response rate

The response rate, which is the ratio of the number of questionnaires completed to the total number of occupied private dwellings in the sample, is 68.6% for Canada, all collection methods combined. This is similar to the response rate for other voluntary surveys conducted by Statistics Canada.

Since the NHS sampling design includes a subsample for non-response follow-up, a weighted response rate that takes this subsample into account is needed to get a better idea of the quality of the NHS data. In the calculation of the weighted response rate, the households in the subsample that responded to the NHS represent not only themselves but also the non-respondent households that are not in the subsample. Table 1 shows the weighted and unweighted response rates by province or territory and the unweighted response rate by response mode.

Table 1 National Household Survey response rate by response mode, Canada, provinces and territories

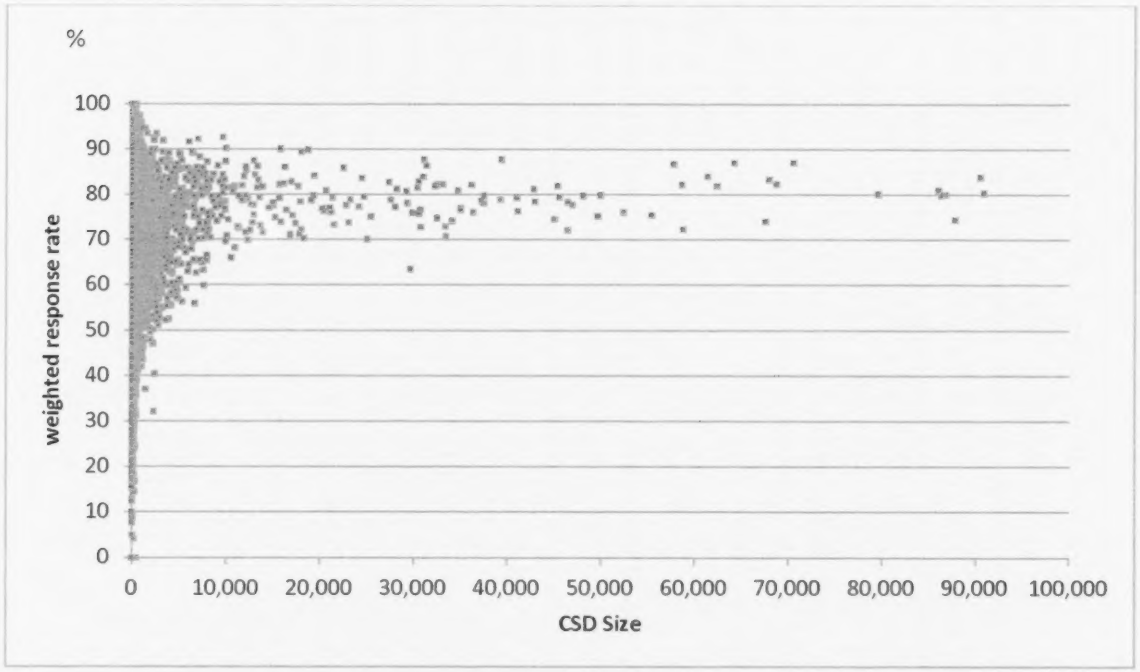
Provinces and territories	Unweighted				Weighted
	Internet	Printed version	Other	All modes	All modes
	%				%
Canada	**43.5**	**11.7**	**13.4**	**68.6**	**77.2**
Newfoundland and Labrador	27.6	18.5	17.2	63.3	72.5
Prince Edward Island	29.5	17.8	13.1	60.4	70.0
Nova Scotia	33.9	18.8	12.3	65.0	74.8
New Brunswick	38.1	13.4	12.4	63.9	74.2
Quebec	44.0	13.3	14.6	71.9	80.7
Ontario	45.4	10.5	11.7	67.6	76.3
Manitoba	36.9	14.1	18.1	69.1	76.3
Saskatchewan	31.3	15.6	16.9	63.8	73.1
Alberta	45.3	8.9	13.1	67.3	75.4
British Columbia	47.8	10.1	11.6	69.5	77.1
Yukon	19.1	7.7	38.1	64.9	72.7
Northwest Territories	3.8	0.4	79.7	83.9	83.8
Nunavut	--	0.7	75.6	76.3	76.3

Note: The response rates are based on the NHS's final sampling weights. The initial sampling weight of the dwellings that responded to the NHS before a specific date during the collection period is equal to the sampling fraction in their area. The dwellings that were in the non-response follow-up subsample and responded were assigned a larger weight to compensate for non-response. The weighted response rates are calculated as follows: the weighted number of sampled private dwellings that returned a questionnaire divided by the weighted number of sampled private dwellings classified as occupied.

Of the self-administered response modes, the online mode was used most. At the national level, this mode had a response rate of 43.5%. Data collected with an online questionnaire are generally more complete and consistent.

The response rate varied by province and territory and by census subdivision (CSD) size. For large CSDs, the response rates varied appreciably in the same way as the provincial and territorial response rates: the weighted response rates were mostly between 70% and 80%. For the smallest CSDs, however, the rates varied much more. Figure 2 shows the weighted response rate in relation to the number of occupied private dwellings for CSDs with 100,000 or fewer occupied private dwellings. As the figure indicates, the response rates for CSDs with fewer than 20,000 occupied private dwellings were highly scattered, while the response rates for larger CSDs (between 20,000 and 100,000 occupied private dwellings) fell mostly between 70% and 90%.

Figure 2 Distribution of the NHS weighted response rate by census subdivision (CSD) size, CSDs with fewer than 100,000 dwellings occupied by the usual residents



Another measure of the survey's response rate is the response rate for each question on returned questionnaires. This rate varies substantially from one section of the questionnaire to another. The response rates for demographic characteristics range from 96.7% to 99.7%. The response rates for sociocultural, linguistic and mobility characteristics range from 95.1% to 99.2%. The response rates for education characteristics range from 89.4% to 95.8%. For the work, income and dwelling characteristics sections, however, the response rates range from 80.7% to 93.9%. For more details, please see the reference guides for the various release topics (see Appendix 2).

4. Data processing

4.1 Data Operations Centre

Statistics Canada's Data Operations Centre (DOC) was the central reception and storage point for electronic and printed questionnaires. Electronic questionnaires were transmitted directly to the DOC's servers, and printed questionnaires were scanned and stored as images. After the quality of the image was confirmed, the data were captured by optical mark recognition (OMR) and intelligent character recognition (ICR). If the image quality was inadequate, the data were captured manually by an operator.

Coding, the next stage of data processing, was also carried out in the Data Operations Centre. All write-in responses were submitted to an automated coding system that assigned each response a numeric code using Statistics Canada reference files, code sets and standard classifications. When the system was unable to assign a code to a particular response, the response was coded manually by an operator.

Coding was applied to the following variables: relationship to Person 1, place of birth, citizenship, non-official languages, home language, mother tongue, ethnic origin, population group, Indian band/First Nation, place of residence 1 year ago, place of residence 5 years ago, place of birth of parents, major field of study, location of study, language of work, industry, occupation and place of work.

4.2 Data edit and non-response imputation

After data capture, initial edit and coding operations have been completed, the data are processed up to the final edit and imputation stage. The final edit detects invalid responses and inconsistencies. This edit is based on rules determined by Statistics Canada's subject-matter analysts. Unanswered questions are also identified. Imputation replaces these missing, invalid or inconsistent responses with plausible values. When carried out properly, imputation can improve data quality by replacing non-responses with plausible responses similar to the ones that the respondents would have given if they had answered the questions. It also has the advantage of producing a complete data set.

The nearest-neighbour method was used to impute NHS data. This method is widely used in the treatment of non-response. It replaces missing, invalid or inconsistent information about one respondent with values from another, 'similar' respondent. The rules for identifying the respondent most similar to the non-respondent may vary with the variables to be imputed. Donor imputation methods have good properties and generally will not alter the distribution of the data, a drawback of many other imputation techniques. Following nearest-neighbour imputation, the data are checked for consistency.

4.3 Weighting

The final responses are weighted so that the data from the sample accurately represent the NHS's target population. The weighting process involves calculating sampling weights, adjusting the weights for the survey's total non-response, and calibrating the weights against census totals.

First, an initial sampling weight of about 3 is assigned to each sampled household. The initial weight of 3 is the inverse of the probability of being selected in the NHS sample. As noted in Section 3.2, about 3 of 10 households were selected in the sample, which yields an initial weight of just over 3 (10/3). Then the sampling weights are adjusted to reflect the selection of the subsample. As mentioned in Section 3.4, the subsample was selected from the set of households that had not responded to the NHS by mid-July 2011. It is important to note that at the end of these two weighting steps, some households have a weight of 1 because in some regions, all households are selected in the NHS sample.

Next, since a number of households in the subsample were still non-respondent at the end of collection operations, the sampling weight is adjusted for the survey's residual non-response. This is done by transferring the weights of non-respondent households to the nearest-neighbour respondent households. The latter are identified in a manner similar to the imputation process described in Section 4.2, using known variables for respondent and non-respondent households, including census variables and a few variables resulting from matches to administrative databases.

Lastly, the weights are calibrated against census totals at the level of geographic calibration areas. Those areas contain an average of about 2,300 dwellings or 5,600 people in the NHS target population. They are formed by grouping dissemination areas so that they are contiguous, have enough respondent households to make calibration easy to perform, and do not straddle census division boundaries or,

wherever possible, census subdivision and census tract boundaries.[1] Calibration is performed so that the estimates for an NHS calibration area are approximately equal to the census counts for that area, for a set of about 60 characteristics common to the NHS and the Census. The control totals used are for age, sex, marital/common-law status, dwelling structure, household size, family structure and language. They include the number of households and individuals in all the dissemination areas that make up the calibration area. It is important to note, however, that for a given area, a number of calibration totals are discarded on the basis of certain criteria to avoid reducing the general quality of the estimates.

Nevertheless, there may be differences between the NHS estimates and the census counts for common characteristics. The smaller the geographic area is, the greater the risk that the NHS estimates will be different from the census counts. This problem was present with the 2006 Census long form, but it was less common because of the higher response rates and the small variation in these response rates across areas, for both small and large municipalities.

Users should pay close attention to the potential differences between the 2011 Census counts and the NHS estimates for common characteristics. Where there are differences, users should consider the 2011 Census counts to be of higher quality and give preference to them since they are not affected by the NHS's sampling variance or non-response error.

A detailed technical guide to NHS weighting will be available in early 2014. It will provide further details on the weighting and estimation process.

5. Data quality assessment and indicators

In a sample survey there are two types of error: sampling error and non-sampling error. The former is present because when we estimate a characteristic, we are measuring only part of the population instead of the whole population. The latter covers all errors that are not related to sampling. This type of error is also present in the census. Sections 5.1 and 5.2 contain an overview of these types of error as they relate to the NHS.

5.1 Sampling error

The objective of the NHS is to produce estimates from a number of questions for a wide variety of geographies, ranging from very large areas (such as provinces and census metropolitan areas) to very small areas (such as neighbourhoods and municipalities), and for various population groups such as Aboriginals Peoples and immigrants. These groups also vary in size, especially when cross-classified by geographic area. Such groupings are generally referred to as 'domains of interest.'

For any given domain of interest, on the assumption that the sampling is random, the sampling error depends on several parameters: population size, the number of survey respondents, the variability of the variables being measured, stratification and cluster sampling.

1. Note that the weights of NHS households that are selected with certainty are calibrated independently. They have their own calibration areas, which can straddle census division boundaries.

With a sampling rate of about 3 in 10 and a response rate of 68.6%, it is estimated that about 21% of the Canadian population participated in the NHS. Nevertheless, the quality of the domain estimates may vary appreciably, in particular because of the variation in response rates from domain to domain.

5.2 Non-sampling error

Besides sampling, a number of factors can cause errors in the survey's results. Respondents may misunderstand the questions and answer them inaccurately, and responses may be entered incorrectly during data capture and processing. These are examples of non-sampling errors that were thoroughly accounted for at every stage of collection and processing to mitigate their impact.

In addition, in every self-administered voluntary survey, error due to non-response to the survey's variables makes up a substantial portion of the non-sampling error. A distinction is made between partial non-response (lack of response to one or some questions) and total non-response (lack of response to the survey because the household could not be reached or refused to participate). Total non-response is likely to bias the estimates based on the survey, because non-respondents tend to have different characteristics from respondents. As a result, there is a risk that the results will not be representative of the actual population.

Since the NHS has a response rate of 68.6% (see Section 3.5), that risk is taken into account. Statistics Canada conducted several studies and various simulations, before and after collection, to assess the risk and extent of the potential bias. A number of measures were taken to mitigate its effects.

5.3 Description of the NHS data quality assessment process and indicators

From the start of collection to approval for release, NHS data undergo many analyses, and a number of quality indicators are produced. In this assessment process, the indicators are analyzed so that the quality of the NHS estimates can be assessed and users can be informed of any potential limitations in the estimates. The main quality indicators produced and analyzed during the assessment are as follows:

Item non-response rates: By collection method, demographic characteristics such as age and sex, and respondents' area of residence.

Indicators of response quality: For example, the rates of invalid or uncodable responses, analyzed by collection method.

Global non-response rate: Combines household non-response and item non-response, and is weighted and produced for various geographies (see Section 6.3).

Indicators of non-response bias: Based on matching of data from the 2006 and 2011 censuses and the NHS sample, these indicators provide data on NHS respondents and non-respondents and measure the average discrepancy between NHS estimates and estimates produced with 2006 Census data (see Section 5.5).

Coefficients of variation (CVs): Used to measure the variability of estimates.

There are three main steps in the assessment process:

Verification of NHS data during collection and processing: This involves calculating the response quality and non-response indicators throughout the collection period. The objective is to detect possible irregularities and correct them during collection and edit and imputation.

Verification of data after edit and imputation: This involves calculating quality indicators for the entire data set and assessing the quality of imputed data. The objective is to ensure that edit and imputation have minimized potential biases while maintaining data consistency. For each NHS question, the key quality indicators produced and analyzed by subject-matter analysts are the imputation rate, the rate of corrected inconsistent responses, and a comparison of item response distributions before and after imputation.

Certification of final estimates: The final estimates were certified after weighting to ensure that the data are consistent and reliable. At this point, the final estimates are compared with various data sources. These comparisons help determine whether the NHS estimates are consistent and therefore of good quality. The key data sources used are estimates from other Statistics Canada surveys for which data based on common concepts are available (for example, the Labour Force Survey), data from previous censuses, and data from selected administrative records available to Statistics Canada (for example, the T1 file on family income and Citizenship and Immigration Canada's Longitudinal Immigration Database). Population projections, available for population subgroups (for example, projections for Aboriginal peoples), which are based on the 2006 Census and are produced with microsimulations, were also compared with the NHS estimates.

Certification of the final estimates is the last step in the validation process leading to recommendation for release of the data for each geography and domain of interest. Based on the analysis of quality indicators and the comparison of the NHS estimates with other data sources, the recommendation is for either, unconditional release, conditional release or non-release for quality reasons. In the case of conditional release or non-release, appropriate notes and warnings are included in the products and provided to users.

For more details on the quality indicators and assessment results, please see the reference guides for the various domains of interest (see Appendix 2).

5.4 Comparability of the NHS estimates

Comparability of the NHS estimates and the 2006 Census

The content of the NHS is similar to that of the 2006 Census long questionnaire. However, a number of changes were made to some questions and sections of the questionnaire. For example, the NHS measures a new component of income (capital gains or losses) and child care and support expenses; the questions used to measure Aboriginal identity were altered slightly; and the universe for determining generational status was expanded to include the entire population, not just the population aged 15 and over. In addition, the unpaid work section was not asked in the 2011 NHS.

Any significant change in survey method or content can affect the comparability of the data over time, and that applies to the NHS as well. It is impossible to determine with certainty whether, and to what extent, differences in a variable are attributable to an actual change or to non-response bias. Consequently, at every stage of processing, verification and dissemination, considerable effort was made to produce data that are as precise in their level of detail, and to ensure that the NHS's published estimates are of good quality in keeping with Statistics Canada standards.

Caution must be exercised when NHS estimates are compared with estimates produced from the 2006 Census long form, especially when the analysis involves small geographies. Users are asked to use the NHS's main quality indicator, the global non-response rate (see Section 6.3), in assessing the quality of the NHS estimates and determining the extent to which the estimates can be compared with the estimates from the 2006 Census long form. Users are also asked to read any quality notes that may be included in dissemination products.

Discrepancy between 2011 Census counts and 2011 NHS estimates

The final weights are selected so as to reduce or eliminate differences between the 2011 Census population counts and the NHS estimates. However, some discrepancies may persist because the weighting constraints sometimes have to be discarded. In addition, since the final weight adjustment is based on calibrated areas, some of which are made up of several small municipalities, there may be discrepancies between the NHS estimates and the census counts for small municipalities. The discrepancy between the population counts and the sample estimates is the difference between the NHS estimate and the 2011 Census count divided by the 2011 Census count.

Whether there is a discrepancy or not is an indication of the quality of the NHS estimates. For a given census subdivision (CSD) or any other geographic area, users are invited to compare the 2011 Census count with the NHS estimate for the same target population to get an idea of the quality of the NHS estimates. The larger the discrepancy is, the greater the risk of having poor-quality NHS estimates.

For CSDs with a population of 25,000 or more, the census count and the NHS estimate are practically identical. That is not always the case for smaller CSDs.

Comparisons of the 2011 Census population counts and the NHS population estimates at the CSD level for the same target population are presented in three figures in Appendix 3. Comparisons are provided for CSDs with a population between 5,000 and 25,000, CSDs with a population between 1,000 and 5,000, and CSDs with a population between 40 and 1,000. Each figure shows the ratio of the NHS population estimate to the 2011 Census population count. If the ratio is equal or close to 1, the NHS population estimate is equal to the 2011 Census population count. If the ratio is greater than 1, the NHS estimate is greater than the 2011 Census count, and if the ratio is less than 1, the NHS estimate is less than the census count. The farther the ratio is from 1, the greater the risk of having poor-quality NHS estimates.

An analysis of the three figures shows that for small CSDs, there can be large discrepancies between the 2011 Census population count and NHS population estimate. As explained in Section 4.3, those discrepancies are due to weighting, and as in any survey, they may be larger for small geographic areas. A similar analysis comparing the NHS estimates and the 2011 Census counts for common questions would also provide an idea of the quality of the NHS estimates.

5.5 Indicators of non-response bias

As noted in Section 3.1, the higher a survey's non-response is, the greater the risk of non-response bias. During collection, the purpose of non-response follow-up, especially the subsample follow-up, was to maximize the survey's response rate and control potential non-response bias due to the survey's voluntary nature.

To assess the quality of the NHS estimates, in addition to the usual procedures (see Section 5.3), indicators of non-response bias were calculated and analyzed.

The indicators were calculated using a data file matching the 2006 and 2011 censuses. By means of a complex matching method using surnames, addresses and birthdates, 73% of 2011 Census respondents were linked to their 2006 records. As a result, we have 2006 Census data (including data from the long form) for a large portion of the NHS sample, whether the household responded or not.

These data made it possible (1) to compare NHS respondents and non-respondents for various characteristics measured in 2006, and (2) to calculate and analyze bias indicators and assess the quality of the NHS estimates. However, these analyses have some limitations, due to the nature of the matching file. It was impossible to match the entire NHS sample to the 2006 Census, and indicators could only be calculated for large geographic areas such as the provinces and territories, census divisions and census metropolitan areas.

It is important to keep in mind that these bias indicators are based on data from the previous census and not bias estimates calculated directly with 2011 NHS data. The indicators were used to assess the potential risk of bias for each geographic area. Analysis of these indicators and additional quality assessment analyses (see Section 5.3) provided assurance that the published NHS estimates meet Statistics Canada's quality standards. Notes are provided for variables and geographic areas for which some limitations on the quality of the NHS estimates must be taken into account.

6. Data dissemination for NHS standard products

6.1 Data suppression

The data that Statistics Canada disseminates are subject to various automated and manual processes to determine whether they should be suppressed. These processes are carried out to maintain **confidentiality** and **data quality**.

6.2 Suppression for confidentiality reasons

Confidentiality refers to the assurance that Statistics Canada will not disclose any information that could be used to identify respondents. Various confidentiality rules are applied to all data that are released or published to prevent the publication or disclosure of any information deemed confidential. If necessary, data are suppressed to prevent direct or residual disclosure of identifiable data. Consequently, geographic areas whose population is below a certain threshold are not published. For details on the confidentiality suppression thresholds, please see the Data Quality and Confidentiality Standards and Guidelines for the NHS.

6.3 Suppression due to estimate quality

Following the review of data quality, the dissemination of data whose quality is not considered satisfactory can be restricted if necessary. Quality indicators are produced for all standard place of residency geographies for which data are released.

The global non-response rate is an important measure of the quality of NHS estimates. It combines household and item non-response. This measure is used for the 2011 Census, just as it was in 2006 for dissemination of the Census, including the long form. In the specific case of the NHS, the global non-response rate is weighted to take account of the initial sample and the subsample used in non-response follow-up. It is calculated and presented for each geographic area.

As noted in Section 3.1, there is non-response bias when a survey's non-respondents are different from its respondents. The higher the non-response is, the greater the risk of non-response bias. For the NHS, a number of measures were taken to mitigate the potential effects of non-response bias. Despite those efforts, the risk of non-response bias remains.

The global non-response rate is also used as a main dissemination criterion associated with the quality of the NHS estimates. For example, the NHS estimates for any geographic area with a global non-response rate greater than or equal to 50% are not published in the standard products. The estimates for such areas have such a high level of error that they should not be released under most circumstances.

The 50% threshold is based on studies of the global non-response rate in relation to the indicators of non-response bias (see Section 5.5). The studies showed that with a global non-response rate of 50% or more, the bias was so large that the estimates were not of sufficiently high quality.

At the Canada level, the NHS's global non-response rate is 26.1%. Item non-response made a much smaller contribution to the global non-response rate than household non-response. Table 3 shows the NHS's global non-response rate for Canada and for each province and territory.

Table 2 Global non-response rate of the 2011 National Household Survey, Canada, provinces and territories

Provinces and territories	Global non-response rate (%)
Canada	**26.1**
Newfoundland and Labrador	31.4
Prince Edward Island	33.4
Nova Scotia	28.2
New Brunswick	28.6
Quebec	22.4
Ontario	27.1
Manitoba	26.2
Saskatchewan	29.3
Alberta	27.4
British Columbia	26.1
Yukon	29.9
Northwest Territories	16.1
Nunavut	25.2

6.4 Coverage of published NHS data

Canada has a total of 147 census metropolitan areas (CMAs) and census agglomerations (CAs). For all of these areas, the global non-response rate is less than 50%, and published NHS data are available in standard products. In addition, NHS standard products are available for all 293 census divisions (CDs) and all 308 federal electoral districts (FEDs).

With a global non-response rate threshold of 50% for the release of NHS data, estimates are published for a majority of census subdivisions (CSDs), or municipalities. Of the 4,567 CSDs with an estimated population of more than 40 (for confidentiality reasons, those with a population of less than 40 are not published), NHS estimates are available in standard products for 3,439 (75.3%). Table 4 shows the distribution of published CSDs by province and territory. The proportion ranges from 100% for the Northwest Territories to 57.4% for Saskatchewan. Table 3 also shows the proportion of each province's and territory's population covered by published CSDs. It ranges from 100% for the Northwest Territories to 79.4% for Prince Edward Island. Overall, data are available for 96.6% of the Canadian population targeted by the NHS.

Table 3 Published data by census subdivision, 2011 National Household Survey, Canada, provinces and territories

Provinces and territories	Published census subdivisions		
	number	%	target population %
Canada	**3,439**	**75.3**	**96.6**
Newfoundland and Labrador	241	69.5	83.9
Prince Edward Island	77	70.0	79.4
Nova Scotia	76	85.4	96.4
New Brunswick	191	71.5	88.7
Quebec	979	84.3	97.8
Ontario	429	81.4	98.5
Manitoba	190	70.6	92.1
Saskatchewan	456	57.4	81.7
Alberta	293	75.1	96.7
British Columbia	437	82.6	97.2
Yukon	15	62.5	84.4
Northwest Territories	34	100.0	100.0
Nunavut	21	84.0	87.0

Note: CSDs not published for confidentiality reasons are excluded from this table. They have an estimated population less than 40.

The NHS is the largest voluntary survey ever conducted by Statistics Canada. During data collection, Statistics Canada used a wide variety of tools to encourage as many people as possible to complete the NHS. As a result, the final response rate was 68.6%, similar to the rates for Statistics Canada's other voluntary surveys.

In some small areas, the response rate was not high enough to produce a valid statistical picture. For those cases, users are encouraged to use data for a higher geography. For most areas, however, the responses received made it possible to produce good-quality estimates that will meet the needs of many users.

7. Appendices

Appendix 1 – List of questions in the 2011 NHS

Questions about the individual

Q.1	Name
Q.2	Sex
Q.3	Date of birth and age
Q.4	Marital status
Q.5	Common-law
Q.6	Relationship to Person 1
Q.7	Difficulties with activities of daily living
Q.8	Reduction of activities due to a physical or mental condition or health problems: (a) at home (b) at work or at school (c) in other areas, for example, transportation or leisure
Q.9	Place of birth
Q.10	Citizenship
Q.11	Landed immigrant status
Q.12	Year of immigration
Q.13	Knowledge of English or French
Q.14	Knowledge of languages other than English or French
Q.15	Language(s) spoken at home (a) most often (b) on a regular basis, but not as often as the main language reported in part (a)
Q.16	First language learned at home in childhood and still understood
Q.17	Ethnic and cultural origins
Q.18	Aboriginal identity
Q.19	Population group
Q.20	Registered or Treaty Indian status
Q.21	Membership in a First Nation or Indian band
Q.22	Religion
Q.23	Place of residence 1 year ago
Q.24	Place of residence 5 years ago
Q.25	Place of birth of parents (a) father (b) mother
Q.27	Secondary (high) school diploma or equivalent
Q.28	Registered Apprenticeship or other trades certificate or diploma
Q.29	College, CEGEP, or other non-university certificate or diploma
Q.30	University certificate, diploma or degree
Q.31	Major field of study
Q.32	Province, territory or country in which the certificate, diploma or degree was completed

Q.33 School attendance
Q.34 Hours worked for pay or in self-employment
Q.35 Lay-off or absence from work
Q.36 Arrangements to start a new job
Q.37 Recent search for paid work
Q.38 Availability for work
Q.39 Date of last job
Q.40 Name of employer
Q.41 Kind of business, industry or service
Q.42 Work or occupation
Q.43 Main activities at work
Q.44 Class of worker
Q.45 Legal status of business (for self-employed workers)
Q.46 Place of work
Q.47 Method of travel to work
Q.48 Length of commute
Q.49 Language of work
(a) most often
(b) on a regular basis, but less often than main language reported in part (a)
Q.50 Number of weeks worked in 2010
Q.51 Full-time or part-time work
Q.52 Amount paid for child care
Q.53 Amount of support payments
Q.54 Option to permit use of income tax return files
Q.55 Income in 2010 (sources and amounts)

Questions about the dwelling

E.1 Who pays the rent or mortgage, taxes, electricity, etc., for this dwelling?
E.2 Is this dwelling owned by you or rented?
E.3 Is this dwelling part of a condominium development?
E.4 How many rooms and bedrooms are there in this dwelling?
E.5 When was this dwelling originally built?
E.6 Is this dwelling in need of any repairs?
E.7 Is this dwelling located on an agricultural operation?
E.8 What are the yearly payments for
(a) electricity?
(b) oil, gas, coal, wood or other fuels?
(c) water and other municipal services?
E.9 What is the monthly rent?
E.10 What are the owner's costs?

Appendix 2 – List of reference guides for NHS domains of interest

1. Aboriginal Peoples Reference Guide, National Household Survey
2. Ethnic Origin Reference Guide, National Household Survey
3. Languages Reference Guide, National Household Survey
4. Place of Birth, Generation Status, Citizenship and Immigration Reference Guide, National Household Survey
5. Religion Reference Guide, National Household Survey
6. Visible Minority and Population Group Reference Guide, National Household Survey
7. Education Reference Guide, National Household Survey
8. Labour Reference Guide, National Household Survey
9. Mobility and Migration Reference Guide, National Household Survey
10. Journey to Work Reference Guide, National Household Survey
11. Housing Reference Guide, National Household Survey
12. Income Reference Guide, National Household Survey

Appendix 3 – Comparison of 2011 Census population count and NHS population estimate by size of census subdivisions

Figure 3.1 Distribution of the ratio of the NHS population estimate to the 2011 Census population count, census subdivisions (CSDs) with a population of 5,000 to 24,999

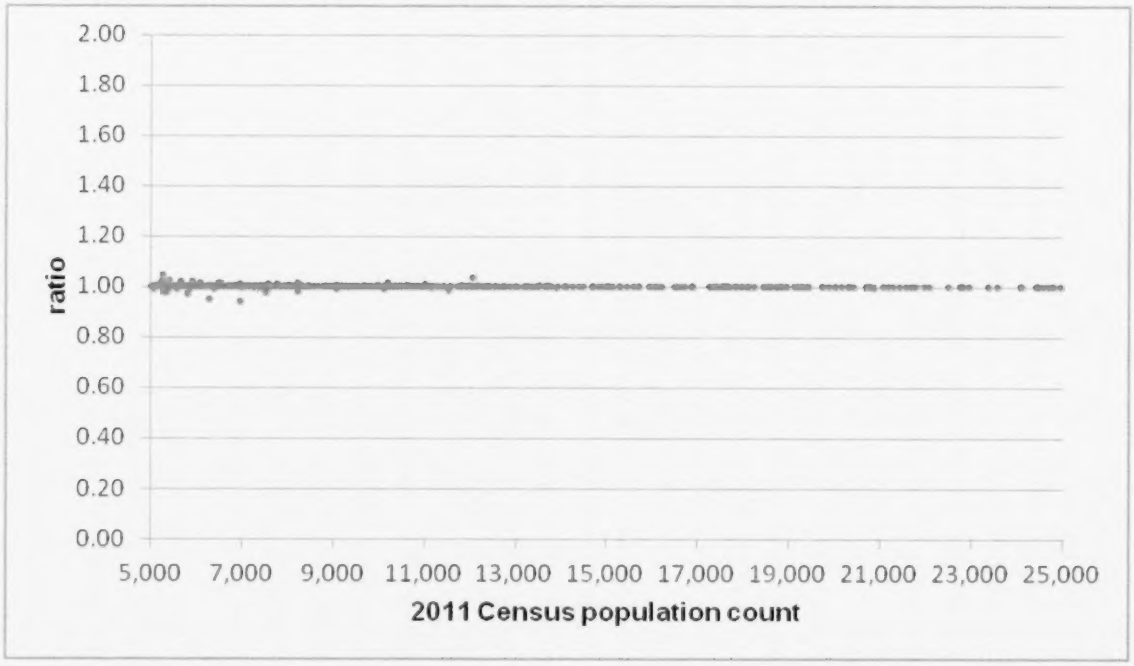


Figure 3.2 Distribution of the ratio of the NHS population estimate to the 2011 Census population count, census subdivisions (CSDs) with a population of 1,000 to 4,999

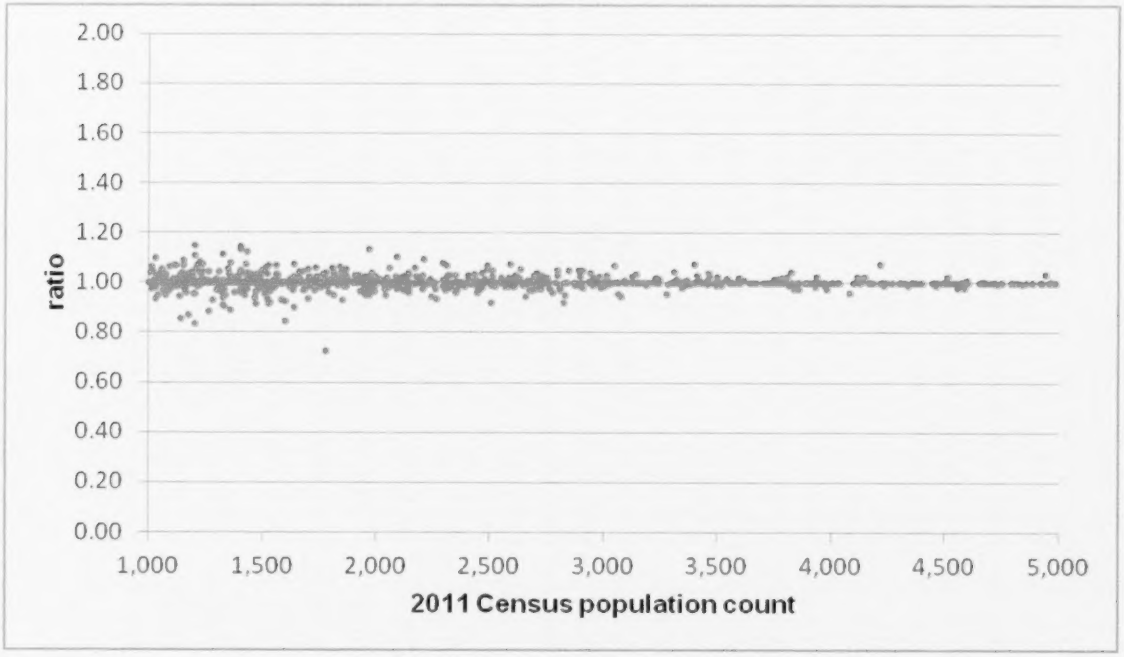


Figure 3.3 Distribution of the ratio of the NHS population estimate to the 2011 Census population count, census subdivisions (CSDs) with a population of 40 to 999